

A fabrication method for a cobalt-salicide contact is described. A deep sub-micron contact opening is formed on a substrate. A silicon nitride spacer is further formed on the contact sidewall. A cobalt layer is further deposited in the contact opening, followed by sequentially forming an ionized metal plasma titanium layer and a chemical vapor deposited titanium nitride layer. A first rapid thermal process is performed and a wet etching is performed to remove the titanium/titanium nitride layer. A second rapid thermal process is performed, followed by filling the contact opening with a conductive layer.

Figures